

RIVER DEBEN ASSOCIATION
Minutes of the third meeting of the RDA Saltmarsh Research Group
Held on Tuesday 19 February 2019 at the offices of Barker Gotelee at 2.30pm

1. Present: Robin Whittle (Chairman), Robert Simper (RS), Richard Steward (RSt), Prof Rob Hughes, Prof Nic Bury, Dr Jamie Whittle, Jane Haviland (part time)

Apologies: Carol Reid and Sarah Zins

2. Minutes of the second meeting held on 1 September 2017: Agreed

3. Matters Arising:

6) Saltmarsh Restoration Paper (RW/RS). RW noted that the finalised version had been circulated to the Suffolk Coast Forum and to others who might be interested. It was now on the RDA Web site, <http://www.riverdeben.org>. The lead saltmarsh document on the Web site 'Conserving the salt marsh', <http://www.riverdeben.org/about-the-river/conserving-the-salt-marsh>, had been rewritten to correct a number of incorrect statements and update it to the current situation. It now had embedded 'links' to relevant documents such as the 'Saltmarsh Restoration Paper' <[Saltmarsh Restoration](#)>, 'Ecosystems and Marine habitats' <[ecosystems and marine habitats](#)>., and 'River Walls' <[River Walls](#)>.

8) Suffolk Saltmarsh Pilot: RW noted that the Suffolk Saltmarsh Group (SSG) was set up towards the end of 2017 and has now met three times. Sarah Zins had proposed the centralising of a data collection and the EA and AONB have now created a spreadsheet 'Collated Estuary Projects'. RW has added information to it gathered by this Group. Dee McCleavy of AONB is responsible for updating the spreadsheet.

4. Survey work - update: Robin gave a short presentation summarising the work that has been carried out, [Saltmarsh research work on the River Deben 2 2019.pdf](#).

a) Loder's Cut island: In spring 2018 four bamboo sticks had been inserted into the edge of the saltmarsh surrounding each of the twelve poles. The reason for this was to simplify the plan measurements taken at each quadrant around the pole. It was now necessary to measure the change at each stick. The results (last set of readings taken at the beginning of October, 2018) continue to show that the saltmarsh is rising at about the same rate as relative sea level rise.

b) Waldringfield Pilot Study Extension: Sheet piling has been placed across a further channel to form a sill close to the river edge. This traps water in a fork lagoon. A new method for measuring the mud level has been set up using a laser set at an angle on top of a post. In addition 10m of crab exclusion netting has been laid along the edge of one of the channels of the saltmarsh. Ten bamboo sticks have been inserted into the edge of the saltmarsh to check the erosion rate of the wall (excluding the effects of crabs). A further 10m length without exclusion netting has been set up with bamboo sticks to check the erosion rate including the effects of crabs.

c) Rosa Waller's Site: Written exemption from both the EA and MMO have been received for survey work to be carried out on this new site. Equipment will be placed on this site within the next month.

ACTION: Richard Steward

d) Falkenham Marsh: In January, 2019 The DEP Saltmarsh Group asked RW to propose a monitoring scheme for Falkenham Marsh. This has been logged on the 'Collated Estuary Projects' Spreadsheet but still has not been discussed at a DEP Saltmarsh Group meeting.

5. Use of dredgings to restore saltmarsh: [Video of dredging work at Loder's Cut](#)

Sediment from Woodbridge quayside was excavated using a clam-shell bucket dredge and placed on the north corner of Loder's Cut Island by the reverse process. For this work, a small 65ft barge (carrying 70 tonnes or 50m³ each load) was used with an aft-mounted excavator. This was

suitable for use in the constrained and busy upper estuary. The unloading was done on the top of the high tide with the barge being floated in and out over separate high water periods. In total 1,400m³ silt were placed over two campaigns (in 2015 and 2017). The deposits raised a 1,369m² area of marsh by around a 1m which became a small 'island' at certain high tides. This island was quickly used by roosting birds and the deposits were relatively rapidly colonised by pioneer marsh plants. The first campaign (in 2015) involved the transportation of 16 barge loads of dredge sediment from Ferry Quay at Woodbridge. A visit in 2016 (a year after this first campaign) indicated that the placed material had remained stable and in situ. The upper margins of this deposited strip had a thick cover of *Salicornia* spp. as well as occasional *Sea Aster* (6-7 plants) and one *Spartina* plant. There were also signs of invertebrate burrows and bird feeding on the un-vegetated lower margins on the channel/cut side.

RS noted that he had a photograph of Loder's Cut Island taken before World War 1, which showed only mud, no saltmarsh growth on the island.

RH noted that saltmarshes seed or reseed themselves through seed dispersed in the water.

- 6. Measuring changes in plan area and height of saltmarshes:** RSt described the testing equipment that has been installed. This provides an alternative method for measuring the mud level, to that of the initial Pilot Study. Distances are measured from the top of a vertical copper tube to the mud surface and the vertical height is calculated by the meter using a built-in tilt angle sensor. The Leica Laser Distance Meter is mounted on a FTA360 tripod adapter and inserted in the top of the copper tube 1m above the saltmarsh level. The meter is rotated through a small angle and 5 No. measurements are taken on an arc at the mud surface and averaged. The elevation datum of the top of the copper tube is measured with Leica GPS/RTK equipment allowing all measurements to be referenced to mAOD. Corrections to the GPS Data are collected via the mobile phone network from a site in Aldeburgh.

RW noted that he was reliably informed by the EA that the RDA Saltmarsh Group is the only group of people providing physical data with respect to saltmarshes along the whole of the East Anglia coast.

1. **7. Coastal Squeeze:** RSt set out his understanding of Coastal Squeeze and why it does not apply to East Coast Estuaries. The definition/description given in *Healthy Estuaries – 2020* is '*Narrowing of the intertidal zone due to the prevention of its natural landward migration in response to sea-level rise (SLR); for the purposes of this project where this is a result of defences such as sea walls preventing migration and causing intertidal erosion.*'
- RSt noted that the Suffolk estuary profiles have risen by 12m over a period of 6,000 years. Up to 400 years ago (before the river walls were built) the saltmarsh area steadily increased as did the storm surge tidal prism. The width of the saltmarsh would have been up to 3km either side of the channel and extending up river for 12-20km. The effect of building the river walls has been to reduce the storm surge tidal prism –reducing the flow and increasing the sediment deposit, including the river bed level. The whole profile has been rising at the rate of sea level rise. There has been no squeeze between the river channel and river walls – quite the reverse. This explains why the depth of the channel has reduced over the centuries.
- RSt noted that, so far, there has been no evidence of any acceleration to sea level rise. The Sea Level Gauges throughout the world have shown a constant GPS corrected rate (1.4mm/year) (for the UK) for over 150 years. The predictions from 1990 onwards that SLR should be 5mm/yr by now have not materialised so far. RH noted that the readings for Scotland could be interpreted as showing some acceleration.

- 8. Regime Theory:** The current modelling given in *Healthy Estuaries – 2020* assumes constant properties for the river bed (e.g. particle size and shear strength) throughout the tidal length of the Deben. The velocity in the lower reaches is greater than that in the middle and upper reaches

due to the import of sand and gravel into the entrance. It follows that the shear strength is greater for the lower reaches than the upper ones. For this reason the model is likely to be flawed and requires verification (not yet provided). RW noted that John White (Harbour Master at Felixstowe Ferry) will be taking RW and RSt out in his boat to place bamboo sticks along the edge of the saltmarsh on both banks of the bottom reach of the Deben. This should provide (within a year) an indication of how much the saltmarsh is eroding, or otherwise.

9. Further Action: RSt agreed to draft a paper/note describing his views concerning saltmarshes. This would be a progression from the paper (for discussion) that he and RW presented to the SSG. **ACTION: Richard Steward**

Next Meeting: To be arranged.

RW thanked James Skellorn for the use of the Barker Gotelee Board room for this meeting.

rtw 22/2/2019